KSC Hydrogen Fuel Cell Mobile Lighting Tower
Project Number: NT-4202

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Background
The vast majority of mobile lighting units today are powered by diesel fuel generators. These systems are not environmentally friendly and their noise can create a safety hazard for workers who are unable to hear (such as oncoming traffic in road construction applications) due to the volume of noise pollution produced by the diesel systems. The units typically provide lighting as well as auxiliary power for items such as power tools and air conditioners. NASA currently uses diesel generator light tower sets for a variety of tasks at security gates, launch viewing sites, fallback areas, bus inspections, outage support and special events.

Objective
NASA and DOE wish to evaluate and document the performance of a new mobile tower lighting system that pairs a Proton Exchange Membrane (PEM) hydrogen fuel cell with plasma lamps to gain life expectancy data in a hot, humid, and corrosive environment.

Period of Performance
- April 2011 – April 2012 (estimated)

Stakeholders
NASA Kennedy Space Center and Sandia, Multiquip, Altergy, Luxim, Straylight, et al

Benefits
- Eliminates diesel particulate emissions
- Increases energy efficiency
- Greatly reduces noise
- Indoor/Outdoor applicability
- The high color rendering index of the plasma lighting also aids human visual acuity and can therefore help improve employee safety

Document Status
- TBD

Recent Progress
- Bailment signed – April 2011
- Alpha unit delivered to KSC – April 2011
- Training & demonstration held – April 19, 2011

Milestones
- Kickoff meeting – June 2010
- 1st Beta unit constructed – December 2010
- Record of Environmental Consideration (REC) completed – January 2011

Near-Term Goals
- KSC approval of written operations & maintenance instructions
- Switch out Alpha unit with Beta unit
- Support STS-135
- Integrate Beta unit into normal Center operations

Updated 06/14/11